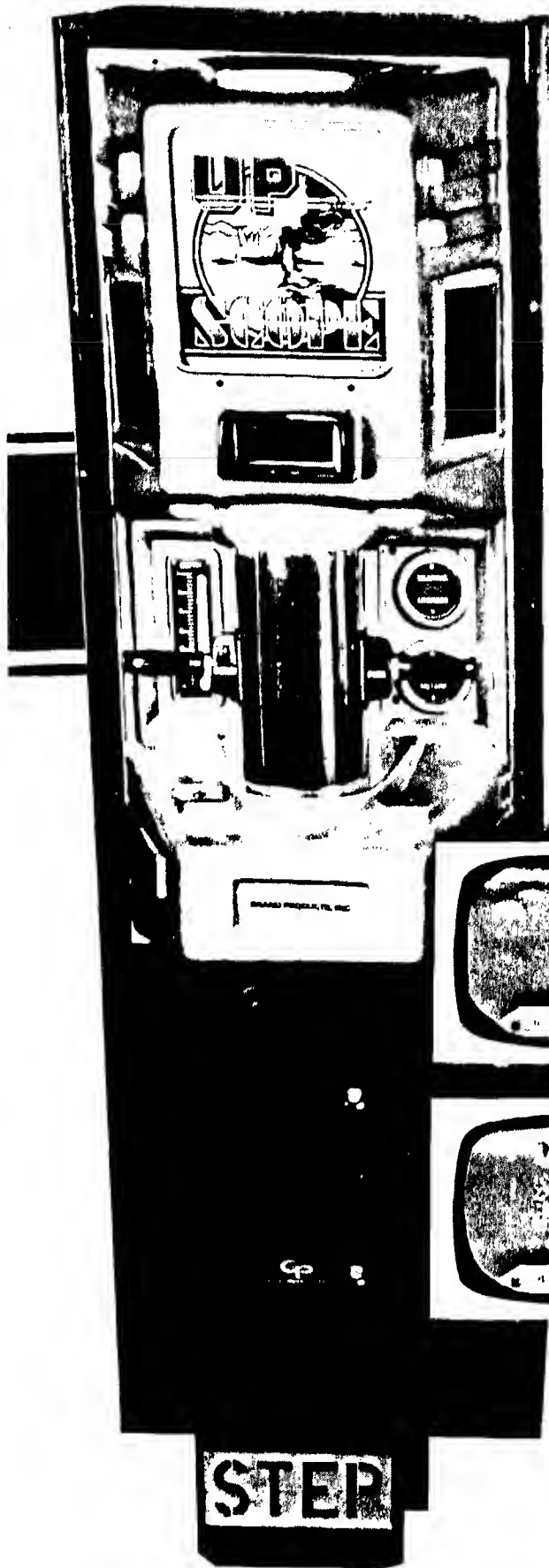


GAME NO. #103-000
FEBRUARY 1987

UP SCOPE INSTALLATION & INSTRUCTION MANUAL

GRAND PRODUCTS, INC.
775 Nicholas Blvd. - Elk Grove Village, IL 60007
(312) 593-2770

A GRAND New Winner



Video Submarine Mission To Sink The Enemy Fleet!

UP SCOPE...dedicated to UP PROFITS!

Players take command to destroy enemy ships along the horizon on a rolling screen. It's an exciting battle against time and obstacles. U-Boat skippers sight targets through scope using firing handles to raise, dive and maneuver the sub in 180° swing.

Aim and fire torpedoes! Direct hits send blazing ships to the bottom of the sea. Top row targets score higher points. Voice alarm warns of sub chaser attack. Dive...but watch out for mines and depth charges. Destroy sub chaser for extra bonus points. Extended play and bonus time adjustable. If player's sub is hit, it sinks, explodes and releases an oil slick.

The Grand UP SCOPE features realistic graphics and sound effects. Takes up little space with great returns in any location. Special built in pull-out step for shorter players.

Join the UP SCOPE crew for deep sea, money making, play action opportunities.

See your distributor or call us!



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Elk Grove Village, IL 60007
Phone: (312) 593-2770

Dimensions:
23 "W x 38.5 "D x 77.5 "H

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WARNING

**THIS GAME MUST BE GROUNDED. FAILURE TO DO
SO MAY RESULT IN DESTRUCTION TO ELECTRONIC
COMPONENTS.**

UP SCOPE TM

INSTALLATION

1. Adjust 4 (four) provided leg levelers on bottom of cabinet. (Installed at factory)
2. The 117VAC power is controled by a switch located on top of cabinet.
3. Plug line cord into 117 volt 60 cycle grounded outlet.

VOLUME CONTROL POTS

1. Located in cash box area left side and controls ~~volume of all sounds. Sounds may be varied by~~ rotating pot control.

GAME ADJUSTMENTS

1. Refer to self test menu for battery back up operators settings.

REMOVING FRONT VACCUM/PERISCOPE ASSEMBLY

1. Remove all screws (10) holding front vaccum assembly to access periscope, mirrors, speakers, lamps and sight assembly.

GAME OPERATION

CREDIT

1. After power up sequence coins can be deposited and 1 player game can be played. Adding additional coins will accumulate credits as shown on screen.

STARTING GAME

1. Pressing Fire button starts game.
2. Various ship targets move across the monitor screen when viewed through periscope.
3. Game timer (adjustable) starts count down and pressing Fire button will shoot torpedoes.
4. Steering periscope and hitting or sinking ships the game will score points.
5. The underwater submarine will steer left and right when moving periscope. Pressing left handle buttons submarine will go up or down.
6. Press Fire button to shoot underwater missile at sub chaser.
7. When a certain score is made the Bonus time feature will add additional time. The Bonus time feature is adjustable.

8. The ten top high scores will be displayed on the high score screen with player initials.
9. Good Luck

INSTRUCTIONS AND SCORE VALUES

- DEPOSIT COIN.
- PRESS FIRE BUTTON TO START GAME.

SURFACE SCENE

- LOOK THRU VIEWER AND MOVE PERISCOPE RIGHT OR LEFT TO SELECT TARGETS.
- PRESS FIRE BUTTON TO SHOOT TORPEDOES.
- SHIPS WITH HIGHEST TARGET VALUE APPEAR IN TOP ROW.
- SUB CHASER APPEARS AT ENEMY RIGHT LEFT COMMAND; IF NOT SUNK, SUBMARINE IS FORCED TO DIVE UNDERWATER.

UNDERWATER SCENE

- MOVE SUBMARINE - RIGHT-LEFT-UP OR DOWN TO AVOID MINES AND DEPTH CHARGES.
- POSITION SUBMARINE UNDER SUB CHASER AND FIRE TORPEDO AT READY TO FIRE COMMAND.
- SUBMARINE RESURFACES AFTER DAMAGE IS REPORTED OR SUB CHASER IS SUNK.
- GAME ENDS WHEN SUBMARINE RECEIVES ADDITIONAL DAMAGE AND SUNK, OR GAME TIME RUNS OUT.

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TARGET VALUES

TOP ROW

SUB CHASER 4500 PTS.
CARRIERS 1500 TO 6000 PTS.
SUBMARINES 750 TO 3000 PTS.
OTHER SHIPS 600 TO 2400 PTS.

2ND ROW

SUB CHASER 4500 PTS.
SUBMARINE 750 TO 3000 PTS.
OTHER SHIPS 450 TO 1800 PTS.

3RD AND 4TH ROWS

SUB CHASER 4500 PTS.
ALL SHIPS 300 TO 1200 PTS.

UNDERWATER

SUB CHASER 4500 PTS.

BONUS TIME LEVELS

16,000 PTS.
35,000 PTS.
70,000 PTS.
100,000 PTS.
125,000 PTS.
150,000 PTS.

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TARGET VALUES AND HIT REPORT

All ships will score three values when hit except the sub chaser which always scores 4500 points.

The lowest value is on the 1st hit when it is off center. A 2nd hit will score higher and a dead center hit sinks the ship immediately.

The score screen displays ship hit values and hit report screen displays how many 1st, 2nd, and center hits are made.

NOTE-

The sub chaser always sinks on the 1st hit.

TARGET VALUES

SUB CHASER	4500 PTS.
CARRIERS	1500 TO 6000 PTS.
SUBMARINE	750 TO 3000 PTS.
OTHER SHIPS	300 TO 2700 PTS.

HIGH SCORE FEATURE

The top ten scores will be displayed on the high score screen. Top ten high scores will also display three initials for each high score.

If the current score is greater than the 10th high score on the high score screen the player is asked to enter his initials next to his score.

The screen format will be similar to the following:

	INITIALS	HIGH SCORES
1	B A D	200 000
2	C C C	198 000
3	F A R	150 000
4	Y E S	110 000
5	A D D	108 000
6	W E R	97 000
7	S A Q	96 500
8	E A R	95 000
9	P A T	90 000
10	J A K	85 000

CONGRATULATIONS YOUR SCORE WAS 108 000

ENTER YOUR INITIALS A _ _

TURN PERISCOPE TO CHANGE LETTER

PRESS FIRE BUTTON TO PICK A LETTER

UP SCOPE TM
GENERAL TROUBLE SHOOTING

INTRODUCTION

The most common problems occur in the harness area such as the coin door, player controls, interconnect wiring etc. The TV monitor trouble shooting will not be covered in this manual. This information can be obtained from Wells Gardner. (Telephone 312-252-8220)

The Logic PC board is a complex device and should be handled with care.

GENERAL SUGGESTIONS

The first in trouble shooting procedure is correctly identifying the malfunction symptoms. A careful trained eye will see additional clues.

After all the clues are carefully considered, the possible malfunctioning areas can be narrowed down to one or two good suspects. Those areas can be examined until the cause of the malfunction is discovered.

HARNESS COMPONENT TROUBLE SHOOTING

Possible problems in this area are coin, credit, power, lights and failure of certain features.

NO COIN OR CREDIT

A coin is inserted and a game is not awarded. First check to see if the coin is in the return cup. If the coin has returned the problem would be in the coin acceptor only. Next clean and inspect the coin acceptor and try with coins. Make adjustments or replace coin acceptor.

NO CREDIT AND COINS GO INTO CASH BOX

In this case you have a coin switch failure or an electrical failure of the coin/start circuit. First examine the coin switch wire form, stroke and wire connections. Then check coin switch for continuity with Ohm meter. If coin switch checks out proceed to the wiring between coin door and logic board.

If the above checks out the trouble must be in the coin/credit circuits of the logic board.

TRANSFORMER AND LINE VOLTAGE

Your game must have the correct line voltage to operate properly. No game will function below 105VAC. In any case the best way to check for correct line voltage is with your volt meter. Set the meter to the next higher scale above 117VAC and stick your probes in the wall outlet. If it is good here check the 117VAC transformer wiring, solder connections, fuse block, on/off switch, switch and wiring harness.

The transformer must be correctly grounded to prevent a hum bar, rolling up or down the TV screen.

HARNESS PROBLEMS

Additional harness problems can be fuses blowing and malfunctioning control.

The best way to approach this problem is by turning the power off and disconnecting devices that may be causing the condition such as the monitor, PC boards and controls. Disconnect the devices by pulling off the connectors and

connecting your volt meter across the fuse that is blowing (Power turned off) and set your meter to a resistance scale. This will save blowing fuses each time you check the circuit for a short. If the meter reads no short with all connectors removed, re-connect the devices one at a time until the meter reads a short. The last device connected caused the short. If the meter reads a short with all devices disconnected then the short is caused by the harness cable which may be pinched somewhere.

MALFUNCTION CONTROLS

The most common problem here would be a bad potentiometer, switch, connector or wiring. A bad pot is normally replaced and switches readjusted, cleaned or replaced. Check for pinched, broken and wire soldering. Also check wiring from controls to logic board using volt meter. If everything checks out, your trouble is in the logic board circuits.

SELF TEST

There are a series of diagnostic screens that allows the logic system to be tested and aid game alignments.

To enter self test locate the red push button in the cash box area.

Turn game off and on and hold red push button during the entire test. The game will enter the self test mode and the first screen will be the self test menu.

Steering the periscope will allow you to choose each self test from the menu as they change color. (1 to 7)

Press the Fire button and the choosen test will appear.

MENU

- 1 POT (CALABRATION)
- 2 BUTTONS (SWITCH TEST)
- 3 LAMPS
- 4 SOUNDS
- 5 RESET H (HIGH SCORES)
- 6 CROSS HATCH
- 7 OPERATOR SETTINGS

When the self test red push button is released and power is turned off and on then game will return to the play mode.

1. POT

The pot value will be displayed on the screen and by turning the periscope the pot value will be 0 with the periscope to the right and 225 to the left.

SELF TEST

** FOR Games with switches only.*

There are a series of diagnostic screens that allows the logic system to be tested and aid game alignments.

To enter the self test locate the slide switch in the cash box area.

When in game over mode move the self test switch to the test position. The game will enter the self test mode and the first screen will be the self test menu.

Steering the periscope will allow you to choose each self test from the menu as they change color. (1 to 7)

Press the FIRE button and the choosen test will appear.

MENU

- 1 POT (CALABRATION)
- 2 BUTTONS (SWITCH TEST)
- 3 LAMPS
- 4 SOUNDS
- 5 RESET H (HIGH SCORES)
- 6 CROSS HATCH
- 7 OPERATOR SETTINGS

When the self test switch is moved to the play position during the menu display the game will return to the play mode.

1. POT

The pot value will be displayed on the screen and by turning the periscope the pot value will be 0 with the periscope to the right and 225 to the left.

A bad pot will cause the number sequence to be jumpy.

2. BUTTONS (SWITCH TEST)

The screen will display the following:

FIRE

UP

DOWN

COIN 1

COIN 2

The button or switch tested will change color on the screen when operating properly.

Press the FIRE and UP buttons together to return to the menu.

3. LAMPS

Move the periscope to choose one of the following displayed on the screen.

ENEMY RIGHT

ENEMY LEFT

TORP 1

TORP 2

TORP 3

TORP 4

SIGHT

BUBBLE LIGHT

The lamp lights when choosen and the option will change color on the monitor.

Press the FIRE button to return to the main menu.

4. SOUNDS

Move the periscope to choose one of the following displayed on the screen.

CHANNEL 1 RIGHT SPEAKER

CHANNEL 2 RIGHT SPEAKER

CHANNEL 3 LEFT SPEAKER

CHANNEL 4 LEFT SPEAKER

The option choosen will change color.

The voice for mission over is heard continuously every two seconds out of the choosen channel.

Press the FIRE button to return to the main menu.

5. RESET H

The top ten high scores displayed on the high score screen will change when they are beat.

Reset H will reset high scores back to the original scores when FIRE button is pressed.

6. GRID DISPLAY

This test will display a cross hatch pattern used in adjusting the color monitor. The cross hatch may be used to adjust color, vertical linearity, convergence and vertical-horizontal size.

Press FIRE button to return to main menu.

7. OPERATORS SETTINGS

Move the periscope to choose one of the following displayed on the screen.

COIN - START	1/1	2/1	3/1	1/2	FREE
START - TIME	60	75	90	105	120
BONUS - TIME	20	25	30	35	40

The option choosen will change color and pressing the FIRE button will lock in the choosen option.

Press the FIRE button once more and return to the main menu.

When the self test switch is moved to the play position during the menu display the game will return to the play mode.

PERISCOPE STEERING POT ALIGNMENT

1. Loosen periscope steering pot set screw.
2. Move and sight periscope to aim at the center of the monitor and start game.
3. Manually turn the periscope steering pot shaft until the compass reading on the monitor screen reads N (North) and tighten the set screw with the periscope dead center.
4. Steer the periscope full left and the compass should read W (West).
5. Steer the periscope full right and the compass should read E (East).
6. Start game and fire torpedoes at ships, check scrolling effect.

T.V. MONITOR

Warnings

1. Power Up Warning

Caution: If the monitor is to be powered up outside of the games console, an isolation transformer must be used for the AC power source.

2. X-Radiation

This chassis has been designed for minimal x-radiation hazard. However, to avoid possible exposure to soft x-radiation it is **IMPERATIVE** that the EHT circuitry **IS NOT** modified.

3. High Voltage

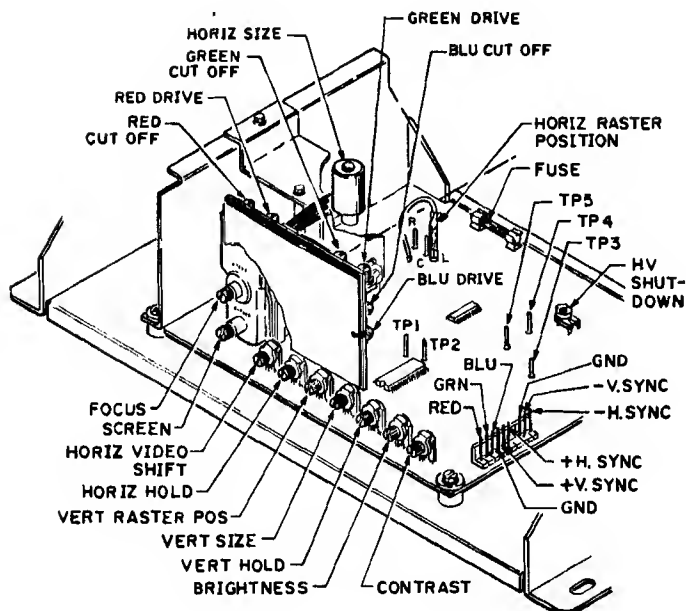
The colour monitor contains **HIGH VOLTAGES** derived from power supplies capable of delivering **LETHAL** quantities of energy. To avoid **DANGER TO LIFE**, do not attempt to service the chassis until all precautions necessary for working on **HIGH VOLTAGE** equipment have been observed.

4. CRT Handling

The picture tube encloses a high vacuum and due to the large surface area is subject to extreme force. Care must be taken not to bump or scratch the picture tube as this may cause the tube to implode resulting in personal injury and property damage. Shatter-proof goggles must be worn by individuals while handling the CRT or installing it in the monitor. Do not handle the CRT by the neck.

5. To prevent fire or shock hazard DO NOT EXPOSE THIS MONITOR TO RAIN OR MOISTURE.

COLOR MONITOR SETUP INSTRUCTIONS



1. HORIZONTAL FREQUENCY

With the monitor being driven with the display signal, connect one jumper between TP1 and TP2 and another jumper between TP3 and TP4. Adjust the horizontal hold control until the picture stops sliding horizontally. Remove the jumpers. Do not use the horizontal hold control for horizontal centering. (See #3)

NOTE: If the sync signal is composite, use the horizontal sync input of the same polarity as the composite sync signal.

2. PICTURE SIZE

Adjust the vertical size control, and the horizontal width coil for desired picture size.

3. PICTURE CENTERING

If the video is off center vertically, turn the vertical raster position control to move the raster up or down. If the video is off center horizontally adjust the horizontal video shift control to center the picture. If any additional horizontal positioning is required, move the horizontal raster position jumper to the left or right position.

4. BRIGHTNESS

Adjust the brightness control to obtain the proper illumination. Adjust this control such that the illumination is just barely extinguished from portions of the display which should be black.

5. CONTRAST CONTROL

Adjust the contrast control for the desired picture intensity.

6. FOCUS

Adjust the focus control for the best overall definition and fine picture detail.

G A M E I A N D O S C H E M A T I C

W I L L B E A V A I L A B L E

S O O N

E P R O M B O A R D S C H E M A T I C

W I L L B E A V A I L A B L E

S O O N

I AND O BOARD PC 0103-904

<u>CHIP NUMBER</u>	<u>FUNCTION</u>
8255	PARALLEL PORT (PP1)
8416	RAM 2K X 8
74LS00	2 INPUT NAND
74LS04	HEX INVERTER
74LS374	FLIP-FLOP (LATCH)
<u>ADDITIONAL DEVICES</u>	<u>FUNCTION</u>
TIP 120	TRANSISTOR
TDA 2003	POWER AMP
IN 5400	DIODE
BATTERY 3.6VDC	41B901CD05

E-PROM BOARD PC 0103-701

<u>CHIP NUMBER</u>	<u>FUNCTION</u>
74LS00	2 INPUT NAND
74LS32	4INPUT OR
74LS123	MULTI-VIBRATORS
74LS138	3-8 LINE DECODER
74LS139	2-4 LINE DECODER
74LS373	8 BIT LATCH
27256	E-PROM 256K

UP SCOPE TM

PARTS LIST

<u>DESCRIPTION</u>	<u>PART NUMBER</u>
Hydraulic Cylinder	0103-029-000
Volume Control	0054-020-000
Speaker 8 Ohms	0056-030-000
I and O PC Board	0103-700-000
Memory Board	0103-701-000
Mirror First Surface	0103-512-000
Lamps No# 44	0056-013-000
Tubular Lamp 25N	0056-027-000
Power Supply	0103-010-000
Foil Paper (Periscope)	0103-904-000
Black Rubber Handle	0042-001-000
Red Push Buttons	0054-007-000
Sighting Mirror	0103-511-000
Eye Sight Mold	0103-508-000
Steering Pot (1 MEG)	0054-007-000
E-PROM PC Board	0052-361-000
Main Vac Form	0103-510-000
Inner Vac Form	0103-513-000
View Panel Glass	0103-503-000
Sight Window Glass	0103-500-000
Battery 3.6VDC	0052-360-000

NOTES

This space is provided for personal notes